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Class-Related Emotions in Physical Education: A Control-Value Theory Approach

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CLASS-RELATED EMOTIONS IN PHYSICAL EDUCATION: A CONTROL-VALUE THEORY APPROACH

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ABSTRACT

This study investigated a model of students' control beliefs and task value in physical education (PE). Specifically, it examined relationships among students' perceptions of their teachers' communication and instructional clarity, control beliefs and values toward PE, and academic emotions. High school students (N= 529) completed valid and reliable instruments assessing perceptions of teacher characteristics, control, value, enjoyment, and boredom in PE. Descriptive statistics, bivariate correlations, and internal reliability estimates were calculated. A path analysis was used to test the hypothesis that teacher communication and clarity would be related to control-value appraisals which would in turn, positively predict enjoyment or boredom. Indirect effects of teacher variables and emotional experiences were also tested with the path analysis.

Findings revealed a good fit of the proposed model (CFI = .99; TLI = .96; RMSEA = .069). Teacher clarity was a stronger predictor than teacher communication of both control (β= .28, p< .01, R^2 =. 09) and value (β= .19, p< .01, R^2 =. 07). Students' value beliefs toward PE positively predicted enjoyment (β= .71, p< .001) and negatively predicted boredom (β= -.61, p< .001). Control beliefs negatively predicted boredom (β= -.13, p< .05). A total of 58% of the variance in enjoyment and 47% in boredom were explained in the model.

This study provides information about establishing effective learning environments that help PE students experience more enjoyment and less boredom. The tenets of control value theory (Pekrun, 2006) were supported, suggesting the framework can systematically investigate student emotions in PE contexts. From a practical standpoint, the importance of instructional clarity in relation to student control and value beliefs in PE highlight the need for teachers to use a variety of clarifying strategies such as effective demonstrations, individual and group feedback,

and redirection and refinement when students are confused. Clarity and content value are especially important for secondary PE because this can shape students' healthy habits as they move into adulthood. Emotional experience is consequently an important outcome that can link to increases in learning and healthy habits outside of school.

INTRODUCTION

According to the Center of Disease Control and Prevention (CDC; 2012) less than 3 out of 10 high school students (ages 13-18 years old) meet daily recommended amounts of physical activity (PA). Physical Education (PE) can contribute to the daily PA levels of young people and facilitate enjoyment, knowledge, and habits that improve quality of life (Bevans, Fitzpatrick, Sanchez, & Forrest, 2010). Students spend countless hours in school developing skills that support personal growth. The time spent in schools inevitably produces powerful emotional experiences that affect learning and performance (Pekrun, Goetz, Titz, & Perry, 2002). Experiencing positive emotions can lead to greater learning, higher academic success and increased motivation when compared to negative emotional experiences (Pekrun, Elliot, & Maier, 2009). Therefore, determining antecedents that facilitate students' positive emotions and reduce negative emotions is an important area of educational research.

Appraisals of control and value toward learning tasks or academic subjects are focal points when determining emotions (Pekrun, 2006; Pekrun et al., 2002). The importance of control-value appraisals is evident in PE settings. For example, Chen, Martin, Ennis, and Sun (2008) found that the development of control beliefs and task values increased students' motivation in PE. Teachers' curriculum choices and teaching practices can impact the control-value beliefs of their students. For instance, if teachers use tasks that students find meaningful and deliver them in ways that students can be successful, feelings of control and value toward PE content will likely increase. Subsequently, using the control-value theory of achievement emotion (CVTAE) framework, the environment antecedents affect the individuals' appraisal systems, and the appraisal system then predicts the achievement emotion (Pekrun, 2006).

Control and value beliefs are critical components of students' motivation that can dictate engagement, learning, future choices, emotions, and behaviors (Pekrun, 2006; Wigfield & Eccles, 2000). Control and value beliefs in this study are defined within the CVTAE (Pekrun, 2006; Pekrun, Goetz, Daniels, Stupinsky, & Perry, 2010). Once control beliefs and task values are explained, their relationship with the pedagogical style of teachers is explored. Specifically, I outline how students' beliefs about their teachers' communication styles and effectiveness in presenting material clearly are related to control beliefs and task values in PE. Generating a greater understanding of how perceptions of teachers' pedagogical styles impact students' beliefs and values can provide important information about how to facilitate learning environments where students feel in control and value the learning content. Finally, class-related achievement emotions are explored as meaningful outcomes of control beliefs and values. Both positive (i.e., enjoyment) and negative (i.e., boredom) class-related emotions are explored within the CVTAE model.

Emotions and their effect on motivation and learning have been studied in a variety of ways. Pekrun (2006) argues that emotions experienced in academic settings play a central role in engagement and learning. Engagement in academics has been linked to higher motivation to learn, grades, academic success, increased attendance, and positive behavior change (Fredricks, Blumfield, & Paris, 2004; Skinner, Furrer, Marchand, & Kindermann, 2008). Feelings of enjoyment or boredom in PE contexts can potentially differentiate students who are engaged from those who are not. Chen and Darst (2002) highlight the contribution that enjoyment in PE activities makes toward future engagement. On the opposite end of the spectrum, boredom is linked to negative consequences such as poor grades and absenteeism (Goetz, Frenzel, Pekrun, & Hall, 2006). Boredom disrupts motivation, which can lead to negative cognitive, affective,

behavioral outcomes in PE (Wallhead, Garn, Vidoni, & Youngberg, 2013). There are close links between student motivation and engagement in academic settings such as PE. SHAPE America (2013) states that physically educated students develop enjoyment toward physical activity and habits of lifelong health. It is vital to connect motivation in PE to physical activity behaviors outside of school because of the implications it has on health and quality of life (Chen, Sun, Zhu, & Chen, 2014). Furthermore, exploring these two emotions can also provide greater insights on students' emotional experiences toward PE. Students' emotional experiences play a key role in developing positive attitudes and intrinsic values toward PA (Webster, Mindrila, & Weaver, 2013).

Control Value Theory of Achievement Emotions

Pekrun (2006) describes CVTAE as an integrated approach that incorporates emotion, cognition, and motivation in order to advance methodology and knowledge of achievement emotions in education. Rooted in assumptions from expectancy-value theory (Pekrun, 1992; Wigfield & Eccles, 2000), attributional theories of emotions (Weiner, 1985), and theories of perceived control (Perry, 1991), CVTAE theorists analyze the effects of antecedents and outcomes of emotions. These emotions are measured in a variety of psychological and performance settings. To further understand CVTAE, control and value appraisals determine achievement related emotions. Factors that affect those appraisals include the environment, the task, and one's previous experiences. Ultimately emotions may work reciprocally with appraisals and the environment, but they predict learning and achievement in academic settings (Pekrun, 2006; Pekrun, Frenzel, Goetz, & Perry, 2007). CVTAE identifies a diverse set of positive and negative emotions associated with achievement settings. The theory can thus help predict factors that may increase positive emotions and decrease factors that contribute to negative emotions.

Anxiety has been the most frequently studied emotion within school settings (Goetz, Frenzel, & Pekrun, 2007). While this is true thus far, Pekrun (1992) argues that measuring positive emotions is an important component and is no less central to learning and achievement than anxiety. The cognitive and motivational elements interrelated with positive emotions may be the crucial factor in the development of intrinsic motivation.

Despite the importance of academic-related emotions, sparse attention in educational research has been dedicated to this topic (Pekrun et al., 2010). Even less research has been conducted on achievement emotions in PE. CVTAE represents a systematic approach to examine achievement emotions in PE contexts. Pekrun (2006) posits control beliefs and task values as direct predictors of achievement emotions. Control beliefs are subjective to the individual and based on the causal influence over actions and outcomes. These beliefs are made up of expectancies of success or failure on future tasks as well as general ability beliefs (Wigfield & Eccles, 2000). Pekrun (2006) describes control as the expectancy that studying in school will lead to success and value as the perceived importance of success. Task values pertain to the subjective worth individuals attached to activities or content outcomes (Pekrun, 2006). They signify the intrinsic or extrinsic importance perceived by the individual. For example, those with high intrinsic values are interested and enjoy class material and content, while extrinsic values are built around attaining recognition and perceived usefulness of the task or content. Studies performed in PE have relied upon expectancy-value theory (Wigfield & Eccles, 2000) to investigate students' control beliefs and task values in relation to a variety of outcomes such as physical activity levels and skill development (Chen et al., 2014; Xiang, McBride, Guan, & Solmon, 2003). The aim of this study is to emphasize how control beliefs and values toward PE are related to students' emotional experiences in PE.

Students' Control Beliefs and Task Value

It is important to note the significance of expectancy-value theory within CVTAE. Wigfield and Eccles (2000) theorize that achievement motivation can be measured using ability beliefs and expectations for success in a content area. For example, students who perceive they have high ability in math and can be successful in future math assignments are more likely to engage in challenging tasks. Creators of CVTAE have used expectancy-value theory in their measures of academic control beliefs and value beliefs (Perry, Hladkyj, Pekrun, & Pelletier, 2001). Although much of the literature in PE has used expectancy-value beliefs, this research measured academic control from modified tools used in CVTAE for academic areas. Therefore control as it is conceptualized in CVTAE encompasses expectancy of success or failure as well as general beliefs about ability. In an investigation of college students transitioning from high school, Perry et al. (2001) explored control beliefs using the CVTAE frame-work. They found that students' perceptions of higher control were related to increased effort, less boredom and anxiety, and higher motivation in the class. Students' value beliefs signify judgments about the quality of tasks or content areas based on its importance, usefulness, and interest (Eccles, 2005). Values that are grounded in outcomes and instrumental usefulness of content are considered extrinsic forms of value, while appraisals of content interest are considered intrinsic in nature (Pekrun, 2006). While control and value beliefs are considered proximal determinants of achievement-related choices and outcomes in expectancy-value theory (Wigfield & Eccles, 2000), CVTAE theorists focus on the relationships between control and value beliefs and achievement-related emotions (Pekrun et al., 2007). In other words, emotions are a significant outcome of control-value appraisals and predictors of outcomes such as academic engagement and achievement.

Research in PE has traditionally used the expectancy-value theory to better understand students' motivation and interest. Zhu and Chen (2013) list boredom, irrelevant curricula, and perceptions of incompetence as being linked to negative attitudes toward PE and lower value beliefs. Students with higher value beliefs toward PE also reported higher levels of intrinsic motivation. For example, using the expectancy-value structure Xiang et al. (2003) reported positive correlations among students' expectancy beliefs, value beliefs, and intentions for future participation in PE. Students' control and value beliefs were associated with a variety of desirable learning outcomes in PE (Chen et al., 2008; Chen et al., 2014), yet little is known about associations with students' emotional experiences. Use of CVTAE appears to be a systematic framework to explore this current gap in the PE literature.

Students' Beliefs about Teacher Communication Styles

Wigfield and Eccles (2000) reported that the social environment in learning contexts affects students' expectancy beliefs and values. Teacher communication style is an aspect of the learning context that can shape students' attitudes, feelings, and behaviors in the classroom (Richmond & McCroskey, 1990). Wanzer and McCroskey (1998) suggest that quality instruction leads to positive student affect toward course content. For example, teachers who use pedagogy that creates clear expectations about what to do and how to do it is a key ingredient for producing feelings of control and value (Chesebro & McCroskey, 1998). Likewise, teachers who are able to communicate with students in a caring manner can also improve student affect (Wanzer & McCroskey, 1998).

Wanzer and McCroskey (1998) theorize that a teacher's communicative style will affect students' perceptions of their class. They characterize teachers' communication with students using two different styles, assertiveness and responsiveness. Assertiveness is linked to teaching

characteristics such as immediacy of instruction, feedback, and competence of material. Responsiveness demonstrates communication focused on caring and friendliness and is described as being an empathetic communicator with competence (Wanzer & McCroskey, 1998). There appear to be connections between teachers' assertiveness and responsiveness and students control and value beliefs. Students who view their teachers as assertive (e.g., provide timely instruction and feedback) are likely to build ability beliefs and value toward PE. Students who feel connected and cared for by the teacher are also more likely to build stronger bonds with class content (Rodriquez, Plax, & Kearney, 1996).

An instructor's ability to successfully motivate students through the content and learning processes with properly structured verbal and non-verbal communication is called teacher clarity (Chesebro & McCroskey, 1998). Teacher clarity is also expected to improve students' perceptions of control and value. Specifically, when content is communicated clearly, students are more likely to understand what to do (i.e., control beliefs) and why it is important (i.e., value beliefs). Research in teacher clarity has examined a variety of pedagogical structures such as task presentation, organization of lesson activities, management, and explicit instruction. When developing their clarity measurement tool, Chesebro and McCroskey (1998) alluded not only to the importance of content presentation, but also communicating classroom processes. Students often reference characteristics of instruction as an important antecedent of boredom in academic settings (Daschmann, Goetz, & Stupinksy, 2014). Materials that are delivered without pedagogical diversity or do not meet the needs of students undermine control and value beliefs, and are often identified as boring (Daschmann et al., 2014; Pekrun, 2006). Teachers do not generally recognize that their instructional styles are precursors to student boredom (Daschmann et al., 2014). On the other hand, teaching methods can cultivate students' initial control beliefs

by providing explanation, demonstration, and adequate practice time with class content. Student beliefs about teacher communication styles including assertiveness, responsiveness, and clarity have not been explored in the PE literature despite theoretical links with expectancy-value theory and CVTAE.

Students' Class-related Emotions

Achievement emotions are defined as high intensity feelings that are directly linked to the process or outcomes of learning (Pekrun, 2006). Based on this definition achievement emotions can be associated with the day-to-day content presented in the learning contexts as well as achievement-related outcomes. For example, Pekrun (2006) points out that students can feel different activity-related achievement emotions in a variety of stages such as "…enjoyment arising from learning, boredom experienced in classroom instruction, or frustration and anger when dealing with difficult tasks (p.317). Examples of positive outcome related emotions include joy, pride, and relief whereas negative outcome related emotions involve anger, shame, or hopelessness.

The focus of this study is on the process emotions of enjoyment and boredom. CVTAE applies the traditional definition of boredom as an affective state that elicits low motivational and physiological arousal and undesirable feelings (Pekrun et al., 2010). Boredom can be elicited within a high ability student with low task demands; the same is true with students with high/low abilities and the task demands are too high allowing little to no success (Pekrun, 2006). Enjoyment can be described as a positive affect when one experiences higher levels of arousal and increased self-efficacy due to high control beliefs and task values (Pekrun, 2006; Pekrun et al., 2007). Research shows positive correlations between enjoyment and performance, intrinsic motivation, and learning outcomes (Chen et al., 2008; Pekrun et al., 2009).

Purpose

Grounded in CVTAE, the purpose of this study is to investigate a model of class-related emotions in secondary PE settings. When students learn content that is perceived as controllable and is valued, it is likely to evoke feelings of enjoyment (Pekrun, 2006). Experiences of positive emotions such as enjoyment trigger higher levels of student engagement whereas boredom can facilitate feelings of alienation and disengagement (Fredricks et al., 2004; Fredrickson, 2001). Students' emotions in PE may indicate their level of motivation and engagement as well as their willingness to participate in physical activity outside of PE (Webster et al., 2013). The visual model presented in Figure 1 highlights the hypothesized relationships that were tested in the structural model of the path analysis.

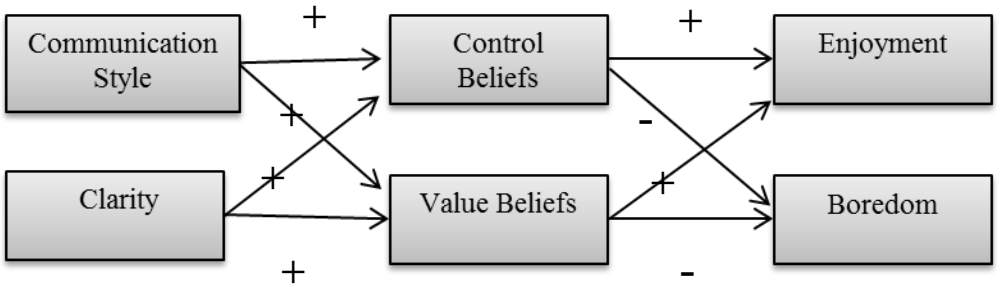

Figure 1. Hypothesized Control-Value Model.

Hypothesis

Using CVTAE as a framework, the model in Figure 1 was generated to evaluate students' emotional experience within PE. Based on this model, it was hypothesized that

1) Students' beliefs about their teachers' communication style and clarity would predict control beliefs and value toward PE content. Students who positively evaluate their teachers'

communication and clarity skills should be more likely to attach greater value to the content and report control beliefs toward PE.

2) Control beliefs and value beliefs would predict feelings of enjoyment and boredom. Specifically, control and value beliefs should positively reflect perceptions of enjoyment and negatively reflect perceptions of boredom.

3) The students' perceptions of their teacher's clarity and communication abilities would indirectly affect emotions of enjoyment and boredom experiences in PE.

METHODS

Participants

Participants were 529 high school students (81% female, 18% male, and 1 non report) currently enrolled in a required PE course. The sample ranged in age from 13 to 18 years (*M*= 15.43, *SD*= 1.82). Three schools were recruited to participate in this study. Each school had students from 9th to 12th grade. The participants reported their ethnicity as white/Caucasian (*n*=75%), black/African American (*n*=14%), Asian/Asian American (*n*=4%), Hispanic/Latino/Mexican American (*n*=3%), Multiracial (*n*=2%), other (*n*=1%), and American Indian/Native Pacific Islander (*n*= >1%). Two schools were private, one being an all-boys school and the other an all-girls. The third was a magnet high school that was coeducational.

Certified PE instructors taught all classes and each school had access to a full size gym and outdoor play and track area. All students surveyed were enrolled in required PE courses and had spent the entire semester with the same instructor at the time of administration.

Procedure

Permission to conduct the study was obtained from the researcher's university institutional review board. PE teachers from local high schools were contacted to set up a meeting to explain the scope of the study. Once permission from PE teachers was received, the researcher visited the PE classes and explained the study to the students followed by distribution of parental permission slips. Parental consent and written student assent was also obtained. All surveys were explained to the students, who completed them during their PE class via paper and pencil. The students were informed there were no incorrect answers and they had complete anonymity, meaning there would be no repercussions from the teacher based on their answers.

The surveys took approximately ten minutes to complete. Students were asked not to place their names on the survey to ensure anonymity and were assured there were no incorrect answers.

Instrumentation

Demographics

Students' age, grade, sex, and ethnic background were self-reported from students. Information about the PE setting such as the type of school and class sections that were considered required PE was obtained.

Teacher Communication

The perception of the teacher's ability to communicate effectively was measured using the Socio-Communicative Style Scale (Richmond & McCroskey, 1990). The 20 item scale measures assertiveness (10 items; e.g., "acts as a leader"; "independent") and responsiveness (10 items; e.g., "helpful"; "responsive to others"). Students were asked to indicate the degree to which each statement applies to their teacher. The scale is a five point Likert scale ranging from "strongly agree that applies" (5) to "strongly disagree that applies" (1). Scales were combined to generate one variable reflecting teacher communication.

Teacher Clarity

The Teacher Clarity Short Inventory (TCSI) was created to improve the efficiency of previous clarity instruments (Chesebro & McCroskey, 1998). Using a five point Likert scale students gave numerical importance, "strongly agree" (5) to "strongly disagree" (1), to questions regarding their teacher clarity such as, "My teacher's objectives for the course are clear." The ten-item scale generates understanding in both instructional content and instructional process of teachers' communication styles (Chesebro & McCroskey, 1998).

Control beliefs

The Academic Control Scale (Perry et al., 2001), an instrument grounded in CVTAE, measured students' academic control beliefs. This scale has a total of eight items (e.g., "I have a great deal of control over my performance in PE class."; "When I do poorly in PE, it's usually because I haven't given my best effort,") assessed on a five point Likert scale ranging from, "strongly agree" (5) to "strongly disagree" (1) (Perry et al., 2001).

Task Values

Task value beliefs were examined to understand perceptions to develop intrinsic, extrinsic and importance to a particular area. Task value questions developed by Eccles and Wigfield (1995) had previously been adapted for PE by Xiang and her colleagues (2003). One example item is: "Compared to most of your other classes, how useful is what you learn in PE?" Previous adaptations were developed for students at the elementary level. For that reason in this study items were reworded for secondary education students. Another example question is: "Some things that you learn in PE help you do things better outside of class. We call this being useful. For example, learning about plants might help you grow a garden, In general, how useful is what you learn in PE?" A five point Likert scale was used with a variety of indicators ranging from, "important/dislike" (1) to "very important/very useful" (5).

Class Related Achievement Emotions

Achievement emotions were measured using the, Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, & Perry, 2005). The subscales specific to class-related emotions of enjoyment and boredom were used. An example of the enjoyment subscale is, "I enjoy being in class" and was ranked on a five point Likert scale from "strongly disagree" (1) to "strongly agree" (5). The same scale was applied to boredom testing in class emotions (e.g., "I get bored in

this class."). There were ten questions regarding enjoyment and eleven targeting boredom. The AEQ has produced reliable and valid scores with secondary students (Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011).

Data Analysis

Descriptive statistics, bivariate correlation estimates, and internal reliability coefficients were calculated. A path analysis model was used to test the main hypotheses of the study (Kline, 2011). Kline describes a path model as a form of structural equation modeling that is conducted on observed variables (e.g. single mean score) instead of latent variables (e.g. multiple item indicators). A path model consists of two main parts, a measurement model and a structural model. The measurement model provides information about how well the proposed model fits the actual data, similar to a confirmatory factor analysis (Hu & Bentler, 1999). Hu and Bentler (1999) provide recommendations about what represents a "good" and "acceptable" model fit. Specifically, examination of the chi-square test, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and root mean square error of approximation (RMSEA) are used to make this determination. Scores of .90 - .94 for the CFI and TLI are considered acceptable scores while scores of .95 or higher are considered good. RMSEA scores of .10 or lower are considered acceptable while scores of .06 or below are considered good. The structural model represents a series of regression equations that allows researchers to investigate multivariate relationships simultaneously (Kline, 2011).

RESULTS

Descriptive statistics, correlation matrix, and internal consistency estimates for all variables can be found in Table 1, calculated using SPSS 21.0. Boredom was the only variable that had mean scores below the midpoint of the 5-point Likert scale for the variables measured. All bivariate correlations between variables were highly significant ($p< .01$). Each variable demonstrated acceptable internal consistency with the minimum Cronbach alpha (α) found for teacher control (α=.82) and communication (α=.82).

Table 1. Descriptive Statistics and Internal Consistency Estimates

Variable	ENJ	BOR	VAL	CONT	COMM	CLAR
M	3.62	2.13	3.25	3.93	4.02	4.15
SD	.89	.93	.85	.67	.53	.66
Skewness	-.44	.78	-.33	-.59	-.36	-.95
Kurtosis	-.21	.11	-.25	.33	-.03	1.41
Cronbach α	.95	.96	.85	.82	.88	.82

Note: ENJ= Enjoyment; BOR= Boredom; VAL= Task Value; CONT= Control Beliefs; COMM= Teacher Communication; CLAR= Teacher Clarity; N= 529

The matrix shown in Table 2 confirms a pattern of positive statistical significance between enjoyment and each of the variables measured. Boredom was found to represent significant negative relationships for each of variables.

Table 2. Bivariate Correlation Matrix

Variable	ENJ	BOR	VAL	CONT	COMM	CLAR
ENJ						
BOR	-.76**					
VAL	.76**	-.67**				
CONT	.44**	-.42**	.47**			
COMM	.27**	-.23**	.21**	.19**		
CLAR	.27**	-.27**	.25**	.30**	.56**	

Note: ENJ= Enjoyment; BOR= Boredom; VAL= Task Value; CONT= Control Beliefs; COMM= Teacher Communication; CLAR= Teacher Clarity; N= 529; *p<.05; **p<.01

The hypothesized model was analyzed using a path analysis. Goodness of fit of the model was assessed by: a) chi-square test; b) CFI; c) TLI; and d) RMSEA. Findings revealed a good fit for the data of the proposed model (χ^2 (15) = 14.022, p=.007; CFI = .99; TLI = .96; RMSEA = .069; see Figure 2). Teacher clarity was a stronger predictor than teacher communication for both control (β= .28, p< .01, R^2 =. 09) and value (β= .19, p< .01, R^2 =. 07). Students' value beliefs toward PE positively predicted enjoyment (β= .71, p< .001) and negatively predicted boredom (β= -.61, p< .001). While less influential than value, control beliefs negatively predicted boredom (β= -.13, p< .05) and positively predicted enjoyment (β= .11, p< .05). A total of 58% of the variance of enjoyment and 47% of boredom was explained in the model demonstrating the significant effect students' perceptions of control and value beliefs have on emotion. However, the model only explained 7% of the variance of value and 9% of control beliefs from the teacher communication and clarity variables. This suggests there are a variety of other factors that may relate to students' control-value perceptions of PE.

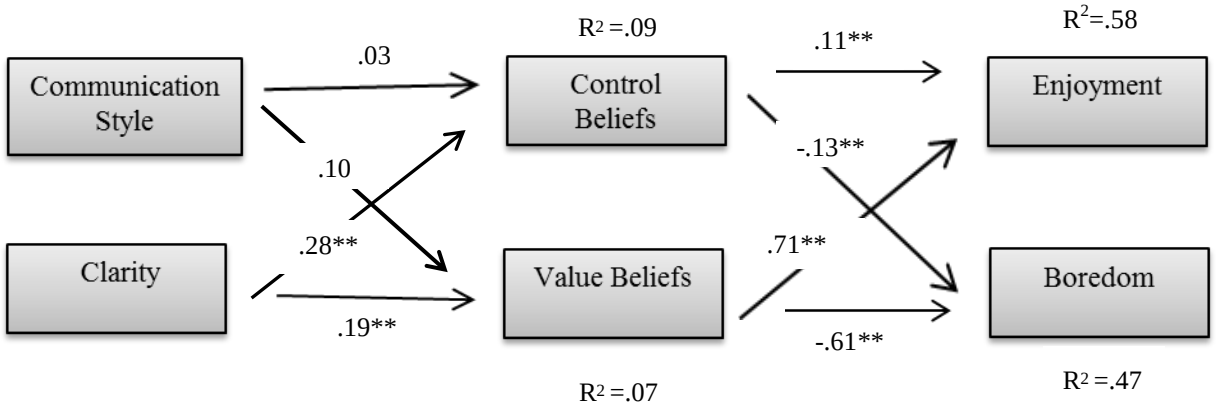

Figure 2. Results of Hypothesized Model. (*p<.05; **p<.01)

In addition, the environmental and student appraisal categories used in the theory were evaluated to assess indirect relationships to the emotions that were targeted (Table 3). Only two of the indirect paths produced a significant relationship. The first significant relationship was a

negative association found from teacher clarity through student control beliefs to boredom (β= -0.06, p< .01). The second significant relationship was also a negative association from teacher clarity through students' value beliefs to boredom (β= -.18, p< .01). Furthermore, three trends were evident in testing of indirect relationships. Predicting enjoyment, the indirect effects of both teacher communication (β= 0.14, p< .07) and clarity (β= 0.12, p< .07). through value approached significance. Predicting boredom, the indirect effect of communication through value also approached significance (β= -0.12, p< .07), reflecting a negative effect.

Table 3. Indirect Effects of Control-Value Path Model Predicting Enjoyment and Boredom.

Indirect Effect	β	p
Enjoyment		
Comm (*Cont)	0.01	0.58
Comm (*Val)	0.14	0.07
Clar (*Cont)	0.01	0.58
Clar (*Val)	0.12	0.07
Boredom		
Comm (*Cont)	-0.01	0.55
Comm (*Val)	-0.12	0.07
Clar (*Cont)	-0.06	0.013*
Clar (*Val)	-0.18	0.001**

Note: COMM= Teacher Communication; CLAR= Teacher Clarity VAL= Task Value; CONT= Control Beliefs; N= 529; *p<.05; **p<.01.

DISCUSSION

The control value theory (Pekrun, 2006) model tested in this study was supported, suggesting it is a framework that can guide investigations of student emotions in PE contexts. This research points out the importance of students' appraisal system and its potential impact on emotional experience. A substantial portion of the variance in students' reports of enjoyment and boredom in PE was accounted for in the theoretical model that was investigated. These findings coincide with research in other academic subjects using CVTAE (Pekrun et al., 2010; Pekrun et al., 2009) along with findings of enjoyment and boredom in previous explorations in PE (Chen, Darst, & Pangrazi, 2001; Wallhead et al., 2013). In particular, students' values toward PE had a positive association with enjoyment and a negative association with boredom. Control was related to positive and negative emotions as well, but findings suggested they were not as influential as task values on these beliefs. These findings align not only with CVTAE, but with past research in PE using expectancy-value theory. Chen et al. (2008) measured different outcome variables from our study (achievement vs. emotion) but they concluded that motivational needs in PE are influenced by value-based motivation. They assert that value in tasks should develop positive expectancy beliefs. Their results support the conclusion that high value attainment and increased expectancy beliefs lead to increased intrinsic motivation, and then suggest future research should focus on building these mechanisms into the PE curriculum (Chen et al., 2008).

Teacher Communication and Clarity and Control-Value Relationship

The first hypothesis theorized teacher communication and teacher clarity would have a positive relationship with control and value beliefs of students in PE. In this study, students' perceptions of their teachers' communication did not predict control or value beliefs. However,

there was a significant relationship between perceptions of teacher clarity and control and value beliefs. Communication in a general sense may include how, what, when, and who as a descriptor for delivery of the message. This study defined and measured teacher communication style as the *who* in terms of personal characteristics of how students received messages. Teacher clarity (which falls under the umbrella of communication) represented what, when, and how to some degree. The results suggest students were more concerned with specific and explicit instruction of material versus personality characteristics of the teacher. From a practical standpoint, the importance of instructional clarity in relation to student control and value beliefs in PE highlight the need for teachers to use a variety of clarifying strategies such as effective demonstrations, individual and group feedback, and redirection and refinement when students are confused (Rink, Hall, & Williams, 2010).

Control-Value Beliefs and Students' Enjoyment and Boredom Perceptions

The second hypothesis investigated in the present study was that students' control and value beliefs would positively predict feeling of enjoyment and be negatively associated with boredom. Students' value beliefs had a strong relationship with feelings of enjoyment during PE. Values encompass (or reflect) students' utility value, intrinsic value, and attainment value of the PE content. Pekrun (2007) highlights the importance of value in explaining academic emotions, asserting it can determine both the type and intensity of emotion. Past examination of value using CVTAE recognizes that positive emotions are significantly related to student learning and achievement (Pekrun et al., 2002; Pekrun et al., 2007). The coefficients of determination for enjoyment and boredom support the conclusion that the influence of control-value appraisals on positive and negative emotions is meaningful.

Value beliefs by themselves played a more significant role in predicting both enjoyment and boredom than control beliefs. This is consistent with Pekrun et al. (2010) who suggested that boredom may relate to high and low control conditions; however, when subjective task value was reduced it shared a distinct relationship causing boredom. This study highlights the role that value beliefs play in an overarching theme toward positive affect. Task value will not only increase motivation (Eccles & Wigfield, 1995), increase students engagement (Simonton, Garn, Dasinger, & Simonton, 2016), and future participation (Xiang et al., 2003), but it is also linked to higher academic achievement and learning (Pekrun et al., 2010; Pekrun et al., 2009). We also know that students value activities they excel in and have experience with (Eccles & Wigfield, 1995).

Indirect Relationships

Teacher clarity and communication had significant negative relations to boredom through control and value beliefs. The results support the conclusion that students' perceptions of teacher communication and clarity built their control and value beliefs in such a way that the students did not experience boredom. Reciprocally, boredom could have a significant relationship with the lack of teacher communication when it builds poor perceptions of student control and value beliefs. Enjoyable experiences were linked to perceptions of effective communication and clarity from the instructor through value beliefs of the student. Thus, this distal relationship between the instructor's communication and clarity through value appears to link how the teacher may affect students' emotions. Emotionally relevant appraisals developed by students may be shaped by their instructional and social environments implying that research on appraisals (i.e., control and value) and their environmental antecedents may help in designing measures of prevention,

therapy, and optimization (Pekrun et al., 2002). This is exemplified by the indirect relationships found in the study.

Teachers' ability to communicate and provide clarity in the PE setting was sufficient to reduce perceptions of boredom in class. Quality instruction, providing beneficial feedback, and delivering content significant information affected students' control and value beliefs in a manner that prevented feelings of boredom. This was also true of teacher clarity, which signified the importance of conveying clear rules, expectations, and helpful specifications to abridge the opportunity to feel bored in class.

Implications for Teaching

The distal relationship of teacher communication and clarity to enjoyment benefited from positive value appraisals. Chen et al. (2008) also found that students respond positively in terms of value from the influence of the curriculum and the instructor. This proposes that specifying the importance of the content to the students through communication and clarification is crucial. In regard to context, Graham (2008) proposes that instructional communication provides students with organizational and informational expectations and in order to maintain a productive learning environment, students need to understand the parameters as well as *why* they are asked to do particular tasks. Additionally, the instructor should propose one or two ideas at a time and keep communication and clarity statements brief. Students' perceptions of value may be hard to identify or monitor, therefore, it is much easier to assess students' feelings toward PE. Graham (2008) articulates a pedagogical tool called *taking emotional temperature*. This communication tool can allow teachers to indirectly change students' emotional state by increasing task value through assessing students' experiences. Communication can provide feedback about task parameters to students, but also about the task itself.

The findings from this study demonstrate how important it is that students perceive value in PE class to experience enjoyment. Value emerged as a powerful influence on positive affect (i.e. enjoyment) and as a link between the teaching environment and positive affect. Teachers would find it advantageous to explore activities that their students perceive as valuable. If a teacher wants her/his students to experience enjoyment, incorporating a student-centered approach is a viable strategy to achieve that goal. For example, a choice-based curriculum would allow students to select activities that are of higher value to them. It could be argued that students will select activities they are most likely to participate in outside of school, which is an important outcome of quality PE (SHAPE, 2013). Tannehill and Lund (2010) suggest that the instructor must gain a greater understanding of the community in which they teach because their students reflect that community. Being systematic in the curriculum design could increase students' value perceptions in PE. They also state that keeping stakeholders in the community informed on best practices in quality PE would increase the value perceptions of PE in general. Chen et al. (2008) state that motivation and content cannot be viewed as separate entities. They advise the curriculum would accentuate high control and value beliefs through the instructor's goals and objectives. This suggests that not only should the class content focus on these constructs, but that the teaching style should align with these goals, this connection is known as a competence-based curriculum (Chen et al., 2008). The value of PE content is also an emphasis championed by Ennis (2006) who articulates that there needs to be a change from a traditional PE curriculum.

PE is not defined by a particular curriculum or teaching style, but instead by its capacity to increase enjoyment. This assertion is grounded in the acknowledgement that emotions are an essential part of a student's decision-making, interest, motivation, learning and achievement (Pekrun, 1992). Research in academic settings has found that positive emotions predicts higher

achievement and learning whereas negative emotions predicts lower achievement, increased absenteeism, and amotivation toward the subject (Daschmann et al., 2014; Pekrun et al., 2009; Pekrun et al., 2010;). Therefore instructors in PE should use emotional evaluation to gauge engagement. Engagement is also linked to increases in positive learning behaviors (Deci & Ryan, 1985) and maintaining engagement will also increase the likelihood that enjoyment will be experienced, particularly in PE (Shen, McCaughtry, Martin, Fahlman, & Garn, 2012). It is suggested that this model can be used in future research, assuming achievement emotion is valued as a substantial outcome within the academic setting to further determine the environmental factors with the greatest influence on student control-value beliefs. Possible areas of interest include the type of content presented in class, the social norms within the class, and the importance of autonomy to the students.

Finally, goals in PE are not only for students to demonstrate learning and achievement through physical and cognitive assessment, but also to develop habits for lifetime health and PA. Therefore, this research can present a dichotomous interpretation. The first is an evaluation of students who do not learn in PE and who are not active outside of school by answering the question "what could be preventing this from happening?" The second is an explanation for students who make the proficient grades but still choose not to use their knowledge and skills to be active outside of class. There is seemingly a missing connection between students' perceptions in class and these perspectives. That connection is the positive or negative emotion experienced in PE class. CVTAE theorizes that the environment will predict student appraisals and those antecedents will predict emotional experiences (Pekrun et al., 2007). We conclude that the environment needs to change to reap the benefits of an enjoyable experience. Our research shows that teachers' communication style plays a role in control-value beliefs and ultimately in

achievement emotions. The investigation of other environmental factors, such as teacher feedback or curriculum choice, could yield valuable insight into other strategies to promote student engagement.

Limitations

Although every attempt was made to recruit a representative sample, the majority of those who participated were white females. Generalizability may be limited and less accurate when evaluating males or other ethnicities. Similarly, student's participation was voluntary, which may be indicative of bias in sampling towards a group more motivated than the general population to participate in this research. Another limitation inherent in the study is the absence of an objective measure of engagement in class and an assessment of physical activity outside of class. Lastly, the model proved to be a viable measure, however there is no research to date that CVTAE has measured achievement emotion in PE.

Conclusions

In this study achievement emotion was evaluated, specifically one positive (enjoyment) and one negative (boredom) construct. Based on students' perceptions of these emotional experiences, potential antecedents of those emotions were also investigated. The environment, appraisal system, and emotional outcome were a framework based on CVTAE, which has been used in a variety of academic settings and shown to predict learning and academic achievement (Pekrun, 2006; Pekrun et al., 2002). This framework highlights the importance of emotion and confirmed assumptions of control-value beliefs. Although this framework has not been used in PE settings, previous research in PE has also identified control beliefs and task values as an essential component for curriculum development to increase motivation (Chen et al., 2008). While past work in PE has explored similar antecedents, this study evaluated emotion as a

significant outcome based in PE. Pekrun et al. (2009) called for more research related to specific achievement emotions. Specifically, the ramifications of understanding enjoyment in PE will allow practitioners to create multilevel, beneficial instruction and curricula. While there are assumptions from past research and other frameworks used in PE, it is important to note this framework identified specific antecedents as they relate to control and value perceptions which makes a contribution to the literature in PE and general academic research.

The results of the thesis study support the conclusion that emotional experiences of enjoyment as opposed to boredom may be equal to, if not more beneficial, as an outcome in PE as compared to "making a good grade." Enjoyment has predicted not only academic success but also motivation and attitudes of longevity related to the enjoyed task. Arguably, physical educators' two most important goals are for students to achieve learning outcomes in class and become lifelong, physically active participants. Therefore, particularly in high school, PE instructors would benefit from paying special attention to their ability to deliver a valued curriculum with clarity and positive communication. The capability to create this type of classroom environment may require delivering non-traditional, student relevant, and challenging based class to reduce boredom and enhance enjoyment.

Directions for Future Research

While emotion is an important outcome to measure, further research in PE is needed to evaluate emotional experiences and their connection to learning outcomes and future PA behaviors. CVTAE has proven to be an effective framework and could be used to guide future research to not only evaluate emotional experiences but also links between emotions to learning and achievement. Under the assumption that control-value appraisals will directly influence emotions, future research should investigate possible antecedents that significantly affect

control-value beliefs. Along with clarity, creating value was especially important for these secondary PE students because it can shape students' healthy habits as they move into adulthood (Corbin, 2002). This could further link emotional experiences to other significant effects. While the current study focused on communication styles and clarity, future research may benefit from focusing on the teachers feedback or expectations. Students' perceptions of other environmental factors may have more specific relationships to a particular aspect of the teaching environment versus overall communication style.

Emotional experiences may also be a better determinant of activity outside of school than other outcomes that have been assessed. We know that having content knowledge does not always translate to participation and understanding achievement-related emotions could provide insight into how to convert knowledge to action. PE has the potential to facilitate the development of lifetime PA habits, but the use of information about long term health risks of inactivity as a rationale to be active may not be meaningful to school-ages students. For example, learning about hypokinetic disease is not typically meaningful until years after PE courses are offered. Future research should focus on antecedents of enjoyment in the present as, this may be a good representative of learning and provide a rationale for continuation. Research should further develop student-centered, individualized, and perceptually pertinent curricula in PE to advocate and promote the importance of PA.

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APPENDIX A
IRB APPROVAL

ACTION ON EXEMPTION APPROVAL REQUEST

Institutional Review Board
Dr. Dennis Landin, Chair
130 David Boyd Hall
Baton Rouge, LA 70803
P: 225.578.8692
F: 225.578.5983
irb@lsu.edu | lsu.edu/irb

TO: Kelly Simonton
Kinesiology

FROM: Dennis Landin
Chair, Institutional Review Board

DATE: October 23, 2015

RE: IRB# E9601

TITLE: Class-related emotions in physical education: A control-value theory approach

New Protocol/Modification/Continuation: New Protocol

Review Date: 10/23/2015

Approved X **Disapproved** _____

Approval Date: 10/23/2015 **Approval Expiration Date:** 10/22/2018

Exemption Category/Paragraph: 1; 2a

Signed Consent Waived?: No

Re-review frequency: (three years unless otherwise stated)

LSU Proposal Number (if applicable):

Protocol Matches Scope of Work in Grant proposal: (if applicable)

By: Dennis Landin, Chairman _____

PRINCIPAL INVESTIGATOR: PLEASE READ THE FOLLOWING –
Continuing approval is CONDITIONAL on:

1. Adherence to the approved protocol, familiarity with, and adherence to the ethical standards of the Belmont Report, and LSU's Assurance of Compliance with DHHS regulations for the protection of human subjects*
2. Prior approval of a change in protocol, including revision of the consent documents or an increase in the number of subjects over that approved.
3. Obtaining renewed approval (or submittal of a termination report), prior to the approval expiration date, upon request by the IRB office (irrespective of when the project actually begins); notification of project termination.
4. Retention of documentation of informed consent and study records for at least 3 years after the study ends.
5. Continuing attention to the physical and psychological well-being and informed consent of the individual participants, including notification of new information that might affect consent.
6. A prompt report to the IRB of any adverse event affecting a participant potentially arising from the study.
7. Notification of the IRB of a serious compliance failure.
8. **SPECIAL NOTE:**

**All investigators and support staff have access to copies of the Belmont Report, LSU's Assurance with DHHS, DHHS (45 CFR 46) and FDA regulations governing use of human subjects, and other relevant documents in print in this office or on our World Wide Web site at http://www.lsu.edu/irb*

APPENDIX B
CONSENT/ASSENT FORMS

PARENTAL CONSENT FORM

1.	Study Title:	Class-related emotions in physical education: A control-value theory approach
2.	Performance Site:	Louisiana High Schools in the greater Baton Rouge area.
3.	Investigators:	The following investigators are available for questions about this study, M-F, 8:00 a.m. – 4:00 p.m. Mr. Kelly Simonton (225)-578-5954 Dr. Alex Garn (225)-578-5954
4.	Purpose of Study:	The purpose of this study is to investigate a model of class-related emotions in secondary physical education. Creating a better understanding about the emotions that students experience in physical education can provide valuable information about facilitating quality learning experiences for these students. The implications can lead to more positive attitudes toward physical activity, greater health awareness, and reduced sedentary behaviors.
5.	Subject Inclusion:	High school students who are enrolled in physical education classes.
6.	Number of Subjects:	250 High School Students
7.	Study Procedures:	High school physical education teachers in the greater Baton Rouge area will be contacted to get initial permission to visit classes and recruit participants for the study. Students that agree to participate in the study will obtain parental permission and provide assent. The researchers will visit during the assigned class periods and administer the surveys to the students. Surveys will address students' perceptions of their teachers' communication and instructional styles, control and value beliefs, and emotions experienced during physical education. Demographic information including age, gender, and ethnicity will also be collected. The surveys will take approximately 15 minutes. Students will not place their names on the survey so results will remain completely anonymous.
8.	Benefits:	There will be no specific benefits to the participants.
9.	Risks:	There are no foreseeable risks related to this research project. All

	informed consent sheets will be separated from each of the surveys. Furthermore, surveys and informed consent will be stored in secure but separate cabinets.
10. Right to Refuse:	Subjects may choose not to participate or to withdraw from the study at any time without penalty or loss of any benefit to which they might otherwise be entitled.
11. Privacy:	Results of this study may be published, but no names or identifying information will be included in the publication. Subject identify will remain confidential unless disclosure is required by law.
12. Signature:	The study has been discussed with me and all of my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have any questions about subject's rights or other concerns, I can contact Dennis Landin, Institutional Review Board, (225)-578-8692. I agree to participate in the study described above and acknowledge the investigator's obligation to provide me with a signed copy of this consent form.

Parent Signature: _____ Date: _____

The study subject has indicated to me that he/she is unable to read. I certify that I have read this consent form to the subject and explained that by completing the signature line above, the subject has agreed to participate.

Signature of Reader: _____ Date: _____

CHILD ASSENT FORM

I, _____, agree to be in a study to help understand emotional experiences in physical education. I will complete the surveys that give my perceptions of my teacher's communication style, my beliefs about my abilities and values toward physical education, and also the typical emotions I experience during class.

Student Signature: _____ Age_____ Date _____

Witness*_____ Date_____

APPENDIX C
QUESTIONNAIRES

Age: How old are you? (write in) _____

Gender (please circle below): Male Female

Ethnicity (please circle below):

Black/African American Asian/Asian-American

White/Caucasian Hispanic/Latino/Mexican American

American Indian/Native Pacific Islander Multi-Racial

Other (please specify)_____

The following questions pertain to feelings you may experience DURING class. Please indicate how you feel, typically, during class.

	Disagree a lot	Disagree	Neither Agree / Disagree	Agree	Agree a lot
1. I get excited about going to PE class.	1	2	3	4	5
2. I enjoy being in PE.	1	2	3	4	5
3. After class I start looking forward to the next PE class.	1	2	3	4	5
4. I am looking forward to the next PE class.	1	2	3	4	5
5. I am happy that I understood the material in this class.	1	2	3	4	5
6. I am glad that it paid off to go to class.	1	2	3	4	5
7. I am motivated to go to this PE because it's exciting.	1	2	3	4	5
8. My enjoyment of PE makes me want to participate.	1	2	3	4	5
9. It's so exciting that I could stay in PE for hours.	1	2	3	4	5
10. I enjoy participating so much that I get energized.	1	2	3	4	5
11. I get bored in PE.	1	2	3	4	5
12. I find PE class fairly dull.	1	2	3	4	5
13. PE bores me.	1	2	3	4	5
14. Because I get bored my mind begins to wander.	1	2	3	4	5
15. I'm tempted to walk out of the class because it is so boring.	1	2	3	4	5
16. I think about what else I might be doing rather being in this boring class.	1	2	3	4	5

17. Time drags on in PE.	1	2	3	4	5
	Disagree a lot	Disagree	Neither Agree / Disagree	Agree	Agree a lot
18. I get so bored I have problems staying alert.	1	2	3	4	5
19. I get restless because I can't wait for PE to end.	1	2	3	4	5
20. During PE I feel I can't wait for the class to end.	1	2	3	4	5
21. I start yawning in PE because I'm so bored.	1	2	3	4	5

For the following questions, Please indicate the degree to which each statement applies to your PE teacher. (My PE teacher is…..)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. Helpful.	1	2	3	4	5
2. Defends Own Beliefs.	1	2	3	4	5
3. Independent.	1	2	3	4	5
4. Responsive to Others	1	2	3	4	5
5. Forceful.	1	2	3	4	5
6. Has Strong Personality.	1	2	3	4	5
7. Sympathetic.	1	2	3	4	5
8. Compassionate.	1	2	3	4	5
9. Assertive.	1	2	3	4	5
10. Sensitive to the Needs of Others.	1	2	3	4	5
11. Dominant	1	2	3	4	5
12. Sincere.	1	2	3	4	5
13. Gentle.	1	2	3	4	5
14. Willing to Take a Stand.	1	2	3	4	5
15. Warm.	1	2	3	4	5
16. Friendly.	1	2	3	4	5
17. Acts as a Leader.	1	2	3	4	5
18. Aggressive.	1	2	3	4	5

19. Competitive	1	2	3	4	5

Please circle the degree to which each statement applies to you in your PE class.

1. For me, being good at activities and games in PE is…	**1 2 3 4 5** **Not Important Very Important**
2. Compared to other school subjects, how important is it to you to be good at activities and games in PE…	**1 2 3 4 5** **Not Important Very Important**
3. In general, I find learning new activities and games in PE?	**1 2 3 4 5** **Way Boring Way Fun**
4. How much do you like activities and games in PE?	**1 2 3 4 5** **Don't like it at all Like it very much**
5. Some things that you learn in school help you do things better outside of class. We call this being useful. For example, learning about plants might help you grow a garden. In general, how useful is what you learn in PE?	**1 2 3 4 5** **Not useful at all Very useful**
6. Compared to the other school subjects, how useful is what you learn in PE?	**1 2 3 4 5** **Not useful at all Very useful**

Please circle the degree to which each statement applies to you in your PE class.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I have a great deal of control over my performance in my PE class.	1	2	3	4	5
2. The more effort I put into my PE class, the better I do.	1	2	3	4	5
3. No matter what I do, I can't seem to do well in my PE class	1	2	3	4	5
4. I see myself as largely responsible for my performance in my PE class.	1	2	3	4	5
5. How well I do in my PE class is often the "luck of the draw."	1	2	3	4	5
6. There is little I can do about my performance in PE class.	1	2	3	4	5
7. When I do poorly in PE, it's usually because I haven't given it my best effort.	1	2	3	4	5
8. My success in PE is basically determined by things beyond my control and there is little I can do to change that.	1	2	3	4	5

Please rate each statement as it applies to your physical education teacher.

	Strongly Disagree	Disagree	Neither Agree/ Disagree	Agree	Strongly Agree
1. My teacher clearly defines concepts (explicitly states definitions, corrects partial or incorrect student responses, refines terms to make definitions more clear).	1	2	3	4	5
2. My teacher's answers to student's questions are unclear.	1	2	3	4	5
3. In general, I understand my teacher.	1	2	3	4	5
4. Projects assigned for the class have clear guidelines.	1	2	3	4	5
5. My teacher's objectives for the course are clear.	1	2	3	4	5
6. My teacher is straightforward in her or his lecture.	1	2	3	4	5
7. My teacher uses clear and relevant examples (he/she uses interesting, challenging examples that clearly illustrate the point. He/she refines unclear student examples. He/she does not accept incorrect student examples).	1	2	3	4	5
8. My teacher is explicit in her or his instruction.	1	2	3	4	5

Thank you for completing the survey!

VITA

Kelly Simonton, Jr., a Wyoming native, born in Cheyenne and raised in Wheatland, received his bachelor's degree from the University of Wyoming in Kinesiology with and emphasis in K-12 Physical Education. To pursue advanced knowledge in teacher pedagogy and motivation as well as a more dynamic and diversified region, he accepted a graduate teaching position in the kinesiology graduate program at Louisiana State University in August 2014. Anticipating completion of his master's degree in May 2016, Kelly plans to continue his education in pursuit of a doctoral degree in kinesiology.